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Benjamin Vicente · Robert Kohn · Pedro Rioseco · Sandra Saldivia · Gonzalo Navarrette · Paula Veloso
Silverio Torres

Regional differences in psychiatric disorders in Chile

■ **Abstract** *Background* Psychiatric epidemiological surveys in developing countries are rare and are frequently conducted in regions that are not necessarily representative of the entire country. In addition, in large countries with dispersed populations national rates may have low value for estimating the need for mental health services and programs. *Methods* The Chile Psychiatric Prevalence Study using the Composite International Diagnostic Interview was conducted in four distinct regions of the country on a stratified random sample of 2,978 people. Lifetime and 12-month prevalence and service utilization rates were estimated. *Results* Significant differences in the rates of major depressive disorder, substance abuse disorders, non-affective psychosis, and service utilization were found across the regions. The differential prevalence rates could not be accounted by socio-demographic differences between sites. *Conclusions* Regional differences across countries may exist that have both implications for prevalence rates and service utilization. Planning mental health services for population centers that span wide geographical areas based on studies conducted in a single region may be misleading, and may result in areas with high need being underserved.

■ **Key words** community prevalences – psychiatric disorders – regional differences – Chile

B. Vicente, MD, PhD (✉) · P. Rioseco, MD · S. Saldivia, PhD
G. Navarrette, MD · P. Veloso, MD · S. Torres
Universidad de Concepción
Depto. de Psiquiatría y Salud Mental
Casilla 60-C
Concepción, Chile
Tel./Fax: +56-41/31-2799
E-Mail: bvicent@udec.cl

R. Kohn, MD
Brown University
Dept. of Psychiatry and Human Behavior
Providence (RI), USA

Cross-national psychiatric epidemiological prevalence studies using similar diagnostic instruments have resulted in disparate rates for specific disorders [1]. The reasons for these differences in rates have been attributed to methodological issues between studies; socio-demographic factors such as socio-economic status differences between countries; and cultural differences. Cross-national comparative studies [2, 3] attempt to correct for socio-demographic variability; yet, differences persist. In some regions of the world, such as prevalence rates in Chinese based studies [4–6], the rates are markedly different than the rest of the world. This either suggests true differences in the rates of pathology or lack of cultural appropriateness of the diagnostic tools and the Western diagnostic systems utilized [7]. Understanding these cross-national differences may provide clues into the etiology of psychopathology.

Regional differences also exist within countries as evidenced by studies where the methodology is similar across geographic areas [8–11]. Regional differences in the presence of serious mental illness have been attributed to migration of the mentally ill [12, 13]; birth in urban areas [14]; and genetic pooling [15]. The most studied regional differences are those between urban and rural populations, where urban environmental adversity is argued to contribute to pathology [16, 17].

An understanding of regional differences in countries where the population is spread across large distances is relevant for health care planning. Potentially risk factors may differ across a country resulting in the need to address mental health needs on a regional basis rather than centrally. Furthermore, an understanding of geographic variability permits allocation of resources to be distributed in a proportional basis by need.

This issue is of particular importance to developing countries such as in Latin America, where frequently services are only provided centrally, or

disproportionately to the wealthier regions of a country. In addition, epidemiological studies based on single regions of the country [18–20] are extrapolated to larger population bases for which they may or may not be representative.

Population studies about psychiatric disorders in Latin America, as well as other developing regions of the world, are rare. They are important, however, for understanding variations in patterns of disorders, underlying determinants, and service needs. Chile, given its rather extraordinary geography provides an important test of variations in disorder rates across a spatially dispersed population, and offers perhaps the best case example of a country where national rates would seemingly have low value for estimating the need for mental health services and programs.

The Chile Psychiatric Prevalence Study (CPPS) was developed to address issues regarding the prevalence and risk factors for mental illness based on a nationally representative sample, and service utilization. Chile has a population of approximately 16 millions people. The country is composed of 51 provinces grouped in 13 regions covering an area spanning 2 million km^2 (including Antarctica and Insular Territories) over a length of 8,000 km. The large distances between major population centers resulted in the CPPS being conducted in four regions of the country, Bio Bio, the south-central region containing the second largest city, Metropolitana, the north-central region which includes the capital Santiago, Tarapaca, the north, and Araucania, the south of the country, in order to obtain a representative sampling of the population of the nation. This report focuses on whether regional differences in the prevalence of psychiatric disorders and service utilization, if present, are due to factors other than socio-demographic differences between population centers.

Methods

Sample selection

The CPPS was based on a household stratified sample of people age 15 and older. A more detailed description of the methods used in the CPPS is available in earlier publications [21]. The sample frame was developed to be representative of the nation's population. Four regions and their most representative province and comunas were selected. These were subsequently subdivided into districts, and then randomly selected blocks. The number of households available on each block was enumerated. The 1992 census of each region was used to determine the number of households required on each block. A list of the inhabitants, age 15 and older, in each household was generated. Using pre-assigned Kish tables (Kish 1965) one person per household was selected from the list to be interviewed.

The survey was conducted by the University of Concepcion, Department of Psychiatry and Mental Health, between July 1992 and June 1999, with each site being completed in the following order based on funding: Bio Bio, Metropolitana, Tarapaca, and Araucania. A total of 2,987 individuals participated in the survey. Response rate did differ by site ($\chi^2 = 11.08$, df = 3, $P < 0.02$) with Metropolitana having the highest non-response rate 12.6% and Tarapaca the lowest 7.5%. A weight was used to account for the probability of the comuna, district, block, household, and respondent being selected. The data was adjusted to the 1992 census of each region based on age, gender, and marital status using a second weight.

Diagnostic assessment

Composite International Diagnostic Interview (CIDI) versions 1.0 and 1.1 [22] were used to generate the diagnoses using well-trained lay interviewers. DSM-III-R [23] diagnostic criteria were employed. A section on health service utilization in the 6-months prior to the interview was also included. The Spanish translation was conducted using the protocol outlined by the World Health Organization (WHO) [24]. A validation study of the Chilean CIDI was found to have kappas that ranged from 0.52 for somatiform disorders up to 0.94 for affective disorders [25] using a sample of patients and volunteers for each CIDI section. After double entry of data and verification for logical inconsistencies diagnoses were generated using the CIDI computer programs for 1.0 and 1.1 [26]. The DSM-III-R diagnoses included in this report are all affective disorders; all anxiety disorders defined as panic disorder, agoraphobia, and generalized anxiety disorder; substance use disorder which does not include nicotine dependence, and any diagnosis. Lifetime and 12-month prevalence rates were examined.

Interviewers and training

Social science university students in their senior year underwent training following the WHO protocol at the University of Concepcion, a WHO CIDI training and reference center. The 64 interviewers received over 80 h of instruction and practice sessions. Each interviewer had to conduct practice interviews with volunteer adult subjects with and without psychiatric disorders selected from local clinics, as well as a pilot interview on an individual in a non-selected household in the community. Approximately 80% of the interviews were audiotaped following the subject's consent, and 20% randomly reviewed for quality control.

Analysis procedures

The SUDAAN statistical package [27], Taylor series linearization method, was used to estimate the standard errors due to the sample design and the need for weighting. The analysis was conducted using procedures without replacement for non-respondents. The comuna and district selected were used as the defined strata. Chi-square analyses were used to examine the association of disorders and service utilization between regions. Logistic regression was used to adjust for socio-demographic differences across regions accounting for differential rates or service utilization. Additional analyses were conducted to examine urban–rural differences. The logistic regression analyses included gender, marital status, age group, education, and income as potential confounders. All results are presented as weighted data.

Results

The distribution of income and marital status were found to differ across the four regions of the country (see Table 1). The population of Bio Bio had significantly lower incomes than the other regions ($\chi^2 = 67.96$, df = 9, $P < 0.0001$). In addition, Bio Bio had the lowest rate of individuals who were separated or had annulled marriages ($\chi^2 = 25.31$, df = 12, $P < 0.05$). In two of the regions the rural population was under-represented relative to the census. In Bio

Table 1 Socio-demographic characteristics by region

Disorders	Bio Bio (N = 800)		Metropolitana (N = 1363)		Tarapaca (N = 306)		Araucania (N = 509)		χ^2	df	P
	%	SE	%	SE	%	SE	%	SE			
Gender											
Male	48.2	1.0	46.4	1.4	48.9	1.0	47.4	1.5	3.23	3	0.38
Female	51.8	1.0	53.6	1.4	51.1	1.0	52.6	1.5			
Age											
15–24	26.7	1.6	24.9	2.1	27.3	2.3	27.0	7.4	7.3	15	0.94
25–34	25.4	1.6	26.1	1.4	27.1	0.6	23.2	4.6			
35–44	18.2	1.9	18.5	1.1	21.1	2.0	17.5	2.6			
45–54	12.1	1.4	12.8	1.2	11.8	0.4	12.3	1.2			
55–64	9.0	1.4	9.2	0.8	6.5	0.4	9.8	1.3			
65+	8.7	2.3	8.5	1.0	6.2	1.9	10.4	1.7			
Education											
No education	2.7	1.0	1.1	0.2	0.3	0.2	1.3	1.0	11.13	9	0.31
Basic	19.7	3.8	17.9	2.3	7.8	2.0	15.2	7.6			
Medium	52.3	3.3	47.9	1.6	52.7	1.5	38.2	7.3			
High	25.2	7.1	33.2	2.3	39.1	3.2	45.2	15.4			
Marital status											
Married	54.7	2.8	52.8	2.3	53.7	3.2	52.3	5.8	25.31	12	0.05
Widowed	5.2	1.1	4.7	0.7	3.3	1.3	5.8	0.2			
Separated/anulled	1.7	0.7	4.1	0.5	3.3	1.4	2.0	0.6			
Never Married	34.4	1.9	32.6	2.4	33.9	1.1	36.1	8.0			
Common Law	4.0	0.8	5.8	1.0	5.9	0.6	3.8	2.0			
Income											
U$100–U$400	70.5	7.1	54.5	3.9	12.2	4.8	47.7	15.4	67.96	9	0.0001
U$401–U$800	19.3	3.3	21.9	1.8	29.6	2.5	20.6	4.5			
U$801–U$1500	6.9	1.9	11.9	1.3	35.6	3.3	12.5	4.0			
U$1501+	3.3	2.5	11.7	2.8	22.7	3.6	19.2	7.2			
Urban/rural											
Urban	97.3	3.1	99.2	0.9	98.9	1.4	92.3	5.0	3.1	3	0.39
Rural	2.7	3.1	0.8	0.9	1.1	1.4	7.7	5.0			

Bio 22% of population was rural the sample only included 2.7%, and in Araucania 38% of the population was rural and the sample only included 7.7%.

Prior to adjusting for socio-demographic differences between the regions, a number of differences in prevalence rates were noted (see Tables 2, 3). Lifetime rates for major depressive disorder were markedly elevated in Tarapaca, 17.2%, and lowest in Bio Bio, 11.6% ($\chi^2 = 9.76$, df = 3, $P < 0.04$). Drug abuse, but not dependence, also had the highest prevalence rate in Tarapaca, 2.4% ($\chi^2 = 8.59$, df = 3, $P < 0.05$). Interestingly, in Araucania the rate of non-affective psychosis was the lowest ($\chi^2 = 11.45$, df = 3, $P < 0.02$). When females were examined the differential rates for major depressive disorder ($\chi^2 = 11.76$, df = 3, $P < 0.02$) and substance use disorders were noted ($\chi^2 = 10.88$, df = 3, $P < 0.03$). Among males the only lifetime difference in prevalence rates was for elevated alcohol abuse in Tarapaca ($\chi^2 = 9.17$, df = 3, $P < 0.04$). For 12-month prevalence the increased risk for major depression in Tarapaca persisted ($\chi^2 = 8.78$, df = 3, $P < 0.05$) for both genders combined and for females ($\chi^2 = 10.08$, df = 3, $P < 0.03$). The differences noted in the prevalence of substance use disorders were no longer evident at 12-months.

Using logistic regression controlling for socio-demographic variables the regional differences for major depression were maintained for both lifetime and 12-month prevalence, as well as among females in both prevalence periods. Males with lifetime prevalent affective disorders were also at increased risk in Tarapaca. In addition regional differences in lifetime prevalence for alcohol abuse, drug abuse, and nicotine dependence were found. Among females, regional differences in lifetime prevalence were noted for drug abuse, drug dependence, any alcohol or drug use disorder, and cognitive disorders, and among men alcohol abuse with increased risk among those residing in Tarapaca. The statistical differences in regional lifetime prevalence of non-affective psychosis for both genders combined, and females in both prevalence periods, persisted with the rates for Araucania remaining low. As the rates for not only major depression, but also alcohol and drug use disorders were elevated in Tarapaca, additional analyses were conducted controlling for comorbidity in the logistic regressions, the regional differences noted were not altered.

Differences in service utilization across the four regions were also found. Araucania had the lowest use of mental health services utilization ($\chi^2 = 0.03$, df = 3, $P < 0.03$), in particular in the non-specialized health care sector ($\chi^2 = 12.63$, df = 3, $P < 0.02$). The rates of service utilization by region are presented in

Table 2 Lifetime prevalence rates of DSM-III-R disorders by region

Disorders	Bio Bio		Metropolitana		Tarapaca		Araucania		χ^2	P
	%	SE	%	SE	%	SE	%	SE		
Affective disorders										
Major depressive episode	7.1	1.3	11.6	0.8	17.2	2.4	9.8	0.8	9.76	0.04
Manic episode	2.2	0.7	1.4	0.4	1.8	0.3	1.5	1.3	1.11	0.78
Dysthmia	7.5	1.1	7.3	1.2	12.2	1.7	6.0	3.3	3.65	0.32
Any affective disorder	13.6	2.2	15.4	1.2	23.2	1.9	14.0	3.2	3.88	0.30
Anxiety disorders										
Panic disorder	1.2	0.6	1.3	0.3	4.3	0.8	1.1	0.5	1.16	0.77
Agoraphobia without panic	14.2	2.7	9.8	1.3	9.7	1.8	5.3	0.8	5.46	0.16
Generalized anxiety disorder	1.8	0.7	3.7	0.5	2.0	0.4	3.0	0.6	5.13	0.19
Any anxiety disorder	19.2	3.7	14.8	1.6	17.9	1.7	8.6	0.9	6.79	0.11
Substance use disorders										
Alcohol abuse	2.8	0.8	2.0	0.5	16.9	2.6	7.2	1.4	8.20	0.06
Alcohol dependence	7.0	1.7	6.4	0.8	6.3	0.5	5.0	0.8	3.63	0.32
Drug abuse	0.6	0.3	1.5	0.4	2.4	0.5	0.1	0.1	8.59	0.05
Drug dependence	2.2	0.7	3.3	1.0	2.2	0.3	1.2	0.1	7.72	0.07
Nicotine dependence	2.9	0.6	2.1	0.6	6.5	0.2	5.4	1.0	7.86	0.07
Any alcohol or drug use disorder	11.0	1.8	11.2	1.0	24.3	2.9	12.3	1.8	1.94	0.59
Any substance use disorder	13.0	2.0	12.9	1.1	29.6	2.9	14.6	1.7	2.43	0.50
Other disorders										
Non-affective psychosis	2.1	0.6	2.3	0.5	0.8	0.2	0.1	0.0	11.45	0.02
Somatoform disorder	2.7	1.1	4.4	0.8	3.1	0.6	3.5	0.7	1.75	0.63
Cognitive disorder	4.5	1.8	3.7	0.8	0.7	0.8	1.0	0.4	5.70	0.15
Any CPPS disorder	32.2	4.1	30.8	1.6	44.4	1.9	28.9	3.1	2.51	0.49
Female										
Affective disorders										
Major depressive episode	7.1	1.3	15.2	1.4	20.6	0.8	11.2	1.1	11.76	0.02
Manic episode	2.6	1.0	1.8	0.5	3.0	0.6	0.5	0.5	3.62	0.32
Dysthmia	10.7	2.0	11.6	1.9	17.2	1.3	8.7	5.1	2.43	0.50
Any affective disorder	16.4	2.6	21.0	1.7	28.3	0.9	16.0	4.9	3.60	0.32
Anxiety disorders										
Panic disorder	1.7	0.9	2.1	0.5	6.7	1.2	2.1	0.9	1.15	0.77
Agoraphobia without panic	20.3	3.2	13.6	2.0	12.2	0.2	7.0	2.4	4.88	0.20
Generalized anxiety disorder	2.5	1.0	6.4	1.0	3.8	0.8	4.4	0.4	5.98	0.13
Any anxiety disorder	26.4	3.9	20.9	2.5	24.8	2.1	12.3	2.0	5.19	0.18
Substance use disorders										
Alcohol abuse	0.5	0.4	1.1	0.6	2.6	0.4	1.0	0.4	2.06	0.57
Alcohol dependence	1.7	0.7	2.0	0.7	4.2	0.2	0.4	0.2	7.53	0.07
Drug abuse	0.0	0.0	0.8	0.3	2.3	0.5	0.0	0.0	7.38	0.08
Drug dependence	2.4	0.7	5.0	1.6	2.7	0.4	0.2	0.2	6.86	0.10
Nicotine dependence	2.5	0.7	2.3	0.8	10.0	0.6	2.6	0.4	2.45	0.49
Any alcohol or drug use disorder	3.6	0.9	7.1	1.5	6.9	0.6	1.6	0.6	11.80	0.02
Any substance use disorder	5.9	1.4	8.9	1.4	16.5	0.3	4.1	0.7	10.88	0.02
Other disorders										
Non-affective psychosis	2.4	0.7	1.9	0.6	1.6	0.3	0.1	0.1	7.81	0.07
Somatoform disorder	2.4	0.7	5.3	1.1	3.6	0.7	4.4	1.7	4.10	0.27
Any CPPS disorder	35.6	3.8	34.7	2.5	37.8	1.1	23.4	4.0	3.02	0.40
Male										
Affective disorders										
Major depressive episode	7.1	1.5	7.4	1.3	13.6	4.6	8.3	1.5	6.84	0.10
Manic episode	1.8	1.0	1.0	0.4	0.5	0.6	2.6	2.2	1.18	0.76
Dysthmia	4.0	1.0	2.4	0.6	7.1	3.3	3.1	2.0	4.10	0.27
Any affective disorder	10.5	2.2	9.0	1.4	18.0	4.3	11.8	2.9	14.57	0.01
Anxiety disorders										
Panic disorder	0.7	0.5	0.4	0.2	1.8	0.3	0.0	0.0	4.39	0.24
Agoraphobia without panic	7.7	2.9	5.3	1.9	7.2	3.5	3.5	1.0	3.94	0.28
Generalized anxiety disorder	1.0	0.7	0.7	0.4	0.0	0.0	1.3	1.0	1.83	0.61
Any anxiety disorder	11.5	4.4	7.9	1.7	10.6	3.4	4.5	0.5	7.59	0.07
Substance use disorders										
Alcohol abuse	5.3	1.5	3.0	0.8	31.9	5.6	14.1	2.8	9.17	0.04
Alcohol dependence	12.5	3.7	11.6	1.9	8.4	1.2	10.2	1.8	1.11	0.77
Drug abuse	1.1	0.7	2.4	0.8	2.6	0.6	0.2	0.2	6.93	0.09
Drug dependence	1.9	1.1	1.5	0.6	1.6	0.4	2.3	0.5	1.40	0.71
Nicotine dependence	3.2	0.7	1.9	0.9	2.9	0.5	8.6	2.2	6.05	0.13
Any alcohol or drug use disorder	18.9	4.1	15.9	1.9	42.6	6.3	24.3	3.4	4.83	0.20
Any substance use disorder	20.5	4.3	17.6	2.1	43.3	5.8	26.2	2.9	5.55	0.16

(Continued)

Table 2 Continued

Disorders	Bio Bio		Metropolitana		Tarapaca		Araucania		χ^2	P
	%	SE	%	SE	%	SE	%	SE		
Other disorders										
Non-affective psychosis	1.8	1.1	2.7	1.1	0.0	0.0	0.0	0.0	5.78	0.14
Somatoform disorder	3.0	1.7	3.2	1.3	2.6	0.5	2.6	0.9	0.23	0.97
Any CPPS disorder	28.5	5.3	26.4	2.3	51.2	4.0	35.0	5.0	4.46	0.23

Non-affective psychosis includes schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, and atypical psychosis

Any CPSS disorder does not include nicotine dependence or cognitive disorder; χ^2 df = 3

Table 4. The lower use of services persisted after controlling for socio-demographic variables in a logistic regression.

When urban versus rural was examined across all sites no statistical differences in the rates of disorders were noted. In addition, there were no socio-demographic differences. The sample size of the rural population was small, 203.

Discussion

Regional differences that persisted after adjusting for potential confounders persisted in the CPPS. Major depression and substance use disorders were highly prevalent in Tarapaca. The high rates of substance use disorders, especially drugs, and were not surprising as the region bordering Bolivia and Peru is heavily involved in the drug trade. The increased rates of major depression, however, could not be accounted for by substance use disorder comorbidity. The differences in rates for non-affective psychosis, although may simply be due to a type 1 error, are nonetheless surprising as the Araucania region's population and our sample has a sizable proportion of Mapuche indigenous people. The Mapuche in earlier psychiatric literature were thought to be at increased risk for psychosis [28]. The small sample size of the rural population precluded finding statistically significant differences.

The utilization of health service was lowest in Araucania and Bio Bio. This may be consistent with the inequities in availability and access that do exist in health and mental health resources across different regions of Chile. The southern half of the country is the poorest and has the least resources; therefore, the lower rates may be due to a lack of access rather than demand. For example across the regions the number of available mental health beds 2001 in the public health service per 100,000 were Araucania 2.2; Bio Bio 4.8; Metropolitana 34.2; and Tarapaca 47.2. The number of primary care physicians per 100,000 populations also was lowest in Araucania, 57.0, compared to Bio Bio with 169.7, Tarapaca with 61.6 and Metropolitana with 185.8.

It could be argued that these regional differences are simply artifact due to sampling differences. Clearly the population investigated in Tarapaca is small for a prevalence study and may have resulted in rates that may prove unstable. Another potential limitation is that the four regions were investigated sequentially, with the potential for socio-cultural influences to impact on the rates during the intervals between data collection. The high proportion of low-income individuals in the Bio Bio sample in comparison to the other sites and in particular Araucania, the poorest region of the country, reflects the improved economic conditions in Chile during the course of data collection and supports a cohort effect. A cohort effect, however, is highly unlikely to explain the rates of psychopathology given that data collection was obtained from Araucania last, yet it has the highest rate of major depressive disorder.

Conclusion

Regional differences across countries may exist that have both implications for prevalence rates and service utilization. Planning mental health services for population centers that span wide geographical areas based on studies conducted in a single region may be misleading, and may result in areas with high need being underserved. Psychiatric epidemiological studies that are nationally representative of developing nations are needed that have a sufficient sampling frame to examine populations believed to be at high risk and regions where increased inequities may exist. Even the most recent epidemiological studies representing Latin America [6, 29] have ignored large segments of the population, such as those countries and regions of countries with large indigenous populations or segments of the population that are very poor. Fewer studies in the region have examined service needs and none have addressed regional differences in services. Data that is more representative of the Latin American population is needed in order to improve mental health services planning and addresses the large under-estimated treatment gap.

Table 3 12-Month prevalence rates of DSM-III-R disorders by region

Disorders	Bio Bio		Metropolitana		Tarapaca		Araucania		χ^2	P
	%	SE	%	SE	%	SE	%	SE		
Total										
Affective disorders										
Major depressive episode	4.1	0.9	7.8	0.8	10.3	1.9	5.1	1.1	8.78	0.05
Manic episode	1.9	0.7	1.1	0.3	1.8	0.3	1.0	0.9	2.05	0.57
Dysthmia	3.0	0.7	4.1	1.2	7.9	2.2	3.1	2.2	6.10	0.13
Any affective disorder	7.8	1.6	10.8	1.3	15.0	1.6	7.5	2.9	5.19	0.18
Anxiety disorders										
Panic disorder	0.5	0.3	0.4	0.2	4.1	0.9	0.6	0.6	1.32	0.73
Agoraphobia without panic	7.0	1.8	6.1	1.5	7.5	2.0	2.2	0.9	4.44	0.24
Generalized anxiety disorder	1.2	0.5	2.3	0.6	1.1	0.3	1.7	0.5	2.41	0.50
Any anxiety disorder	11.1	1.7	9.2	1.6	11.9	1.6	3.8	1.3	5.69	0.15
Substance use disorders										
Alcohol abuse	2.1	0.6	1.8	0.5	5.8	1.8	3.3	0.8	4.05	0.28
Alcohol dependence	5.2	1.5	4.8	0.7	3.7	0.4	2.8	0.5	4.26	0.26
Drug abuse	0.2	0.2	0.4	0.2	1.5	0.4	0.0	0.0	3.99	0.28
Drug dependence	1.5	0.8	1.9	0.5	1.8	0.3	0.4	0.4	2.91	0.42
Nicotine dependence	2.1	0.5	1.9	0.6	5.6	0.3	4.4	1.0	4.18	0.26
Any alcohol or drug use disorder	8.4	1.6	7.9	0.9	10.7	2.0	6.2	1.2	2.84	0.43
Any substance use disorder	10.0	1.6	9.4	1.0	15.7	2.1	8.2	1.6	2.38	0.51
Other disorders										
Non-affective psychosis	1.1	0.4	1.4	0.3	0.8	0.2	0.0	0.0	8.45	0.06
Somatoform disorder	1.8	0.8	3.9	0.6	3.1	0.6	3.0	0.6	2.95	0.42
Any CPPS disorder	23.9	3.5	23.0	1.5	25.3	1.7	14.7	3.9	2.84	0.43
Female										
Affective disorders										
Major depressive episode	4.8	0.9	10.5	1.3	14.8	0.8	5.3	2.4	10.08	0.03
Manic episode	2.6	1.0	1.5	0.5	3.0	0.6	0.2	0.2	6.25	0.12
Dysthmia	4.3	1.4	6.9	2.3	8.8	1.7	3.9	3.2	6.92	0.09
Any affective disorder	9.6	1.8	15.2	2.2	20.0	0.9	8.2	5.3	5.72	0.15
Anxiety disorders										
Panic disorder	0.5	0.3	0.6	0.3	6.6	1.3	1.0	1.2	1.37	0.71
Agoraphobia without panic	11.9	3.0	8.4	2.4	10.4	0.3	3.4	1.0	5.78	0.14
Generalized anxiety disorder	1.4	0.8	3.9	1.0	2.2	0.6	2.7	0.7	3.24	0.37
Any anxiety disorder	17.3	2.3	13.0	2.5	17.5	1.2	6.3	1.7	5.90	0.14
Substance use disorders										
Alcohol abuse	0.5	0.4	1.0	0.5	0.9	0.2	0.6	0.5	0.93	0.82
Alcohol dependence	0.9	0.5	1.3	0.7	4.2	0.2	0.0	0.0	5.16	0.18
Drug abuse	0.0	0.0	0.2	0.2	0.5	0.1	0.0	0.0	2.48	0.49
Drug dependence	1.5	0.7	2.9	0.8	2.7	0.5	0.2	0.2	8.50	0.05
Nicotine dependence	2.0	0.7	2.1	0.8	8.5	0.4	2.0	0.8	1.71	0.64
Any alcohol or drug use disorder	2.9	1.0	4.5	0.8	5.1	0.4	0.8	0.7	7.98	0.06
Any substance use disorder	4.9	1.4	6.0	0.6	13.3	0.9	2.8	0.7	14.74	0.01
Other disorders										
Non-affective psychosis	1.5	0.7	1.2	0.5	1.6	0.3	0.0	0.0	7.05	0.09
Somatoform disorder	1.9	0.7	5.0	1.1	3.6	0.7	4.2	1.8	4.50	0.23
Any CPPS disorder	23.4	2.7	24.7	2.9	28.4	0.9	12.3	5.1	2.83	0.42
Male										
Affective disorders										
Major depressive episode	3.4	1.1	4.7	1.1	5.5	3.6	5.0	0.4	1.30	0.73
Manic episode	1.1	0.9	0.7	0.3	0.5	0.6	1.8	1.6	0.68	0.88
Dysthmia	1.6	0.8	0.8	0.3	7.0	3.3	2.1	2.0	4.78	0.21
Any affective disorder	5.9	1.7	5.7	1.1	9.8	2.8	6.7	1.3	4.46	0.23
Anxiety disorders										
Panic disorder	0.6	0.4	0.2	0.2	1.6	0.4	0.0	0.0	3.07	0.39
Agoraphobia without panic	1.7	0.9	3.4	1.7	4.5	3.8	0.9	0.9	1.94	0.59
Generalized anxiety disorder	1.0	0.6	0.4	0.2	0.0	0.0	0.5	0.4	1.97	0.58
Any anxiety disorder	4.4	1.8	4.7	1.6	6.1	3.5	1.1	0.9	3.26	0.37
Substance use disorders										
Alcohol abuse	3.7	1.2	2.7	0.8	10.9	3.7	6.3	1.2	6.20	0.12
Alcohol dependence	9.7	2.8	8.8	1.8	3.1	1.0	5.9	0.9	3.88	0.29
Drug abuse	0.4	0.4	0.7	0.5	2.6	0.6	0.0	0.0	3.47	0.34
Drug dependence	1.5	1.2	0.8	0.5	0.9	0.2	0.6	0.8	0.33	0.95
Nicotine dependence	2.2	0.7	1.8	0.8	2.5	0.5	7.0	2.0	3.08	0.39
Any alcohol or drug use disorder	14.4	3.2	11.8	2.0	16.6	4.4	12.1	1.6	1.25	0.74
Any substance use disorder	15.4	3.2	13.3	2.1	18.2	4.0	14.1	2.8	1.07	0.78

(Continued)

Table 3 continued

Disorders	Bio Bio		Metropolitana		Tarapaca		Araucania		χ^2	P
	%	SE	%	SE	%	SE	%	SE		
Other disorders										
Non-affective psychosis	0.8	0.4	1.6	0.7	0.0	0.0	0.0	0.0	5.75	0.14
Somatoform disorder	1.6	1.2	2.6	1.0	2.6	0.5	1.8	0.8	2.05	0.57
Any CPPS disorder	21.8	5.3	20.5	2.5	22.0	3.0	17.3	3.4	1.12	0.77

Non-affective psychosis includes schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, and atypical psychosis
Any CPSS disorder does not include nicotine dependence or cognitive disorder; χ^2 df = 3

Table 4 Mental health service utilization in the past 6-months by region among those with DSM-III-R 12-month prevalent disorder

Disorders	Bio Bio		Metropolitana		Tarapaca		Araucania		χ^2	P
	%	SE	%	SE	%	SE	%	SE		
Any MH service	17.6	1.1	21.1	2.5	25.9	0.3	12.0	1.9	10.09	0.03
Non-specialized MH service	15.2	1.0	17.1	1.8	24.3	0.4	10.7	1.6	12.63	0.02
Specialized MH service	5.2	0.9	6.7	1.3	5.6	1.1	3.4	1.1	4.26	0.26
Substance service	0.1	0.1	0.3	0.2	0.4	0.1	0.1	0.1	2.87	0.43

χ^2 df = 3, MH = Mental Health
Non-Specialized MH Services = primary care physicians; Specialized Mental Health Services = inpatient or outpatient services provided by a psychiatrist or a psychologist or formal substance abuse services; Substance abuse services included inpatient and outpatient detoxification or Alcoholics Anonymous

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